REMARKS/ARGUMENTS

I. Introduction:

As noted in Amendment A, the original patent application contained two claims numbered 11. The claims have been renumbered so that the original second claim number 11 through claim 35 are now claims 12-36. Claims 18, 19, 22, 24, 28, 34 are amended to correct the claim dependency for the renumbered claims. The amendment, therefore, puts the claims in proper form as requested by the Examiner and is requested that it is entered. Claims 3, 5, 10, 12, 13, 16, 17, 21, 26, 30, and 32 were previously canceled. Claims 1, 2, 4, 6-9, 11, 14, 15, 18-20, 22-25, 27-29, 31, and 33-36 are currently pending.

Reconsideration of the rejections is respectfully requested.

II. Claim Rejections under 35 U.S.C 103:

Claims 1, 2, 4, 6-9, 11, 14, 15, 18-20, 22-25, 27-29 and 31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,757,255 (Aoki et al.) in view of U.S. Patent No. 6,687,223 (Sajadieh et al.).

Applicant respectfully submits that neither Aoki et al. nor Sajadieh et al. show or suggest calculating a burst parameter, calculating a burst-rate traffic profile, or calculating a periodic worst-case delay for the burst-rate traffic profile, as set forth in the claims.

Aoki et al. disclose an apparatus for measuring communication performance. The apparatus measures the performance in the TCP communications on a communications route of a network. An average value of round trip times is obtained based on a small number of measurement-oriented packets at an interval of

fixed time, a maximum segment size obtained based on a packet size of the packets transmitted and received, and a maximum congestion window size estimated from a time change in the round trip time, are used as performance indexes.

Aoki et al. obtain performance indexes of a round trip based on direct measurement of packets transmitted and received. Direct measurement, as used in Aoki et al. is cumbersome and provides only information about current conditions. It does not predict how the system will perform under different traffic conditions, or how the system will perform with a different allocation of resources. Being able to analyze network performance under hypothetical conditions is useful, for example when a customer and internet service provider agree to the customer sending increased voice and video traffic. Such traffic is burstier than data traffic. Applicant's invention, as set forth in the claims, is particularly advantageous in that it can be used to estimate the effect of an increase in bursty traffic on delay and obtain an estimate of periodic worst-case delay in a way that is scalable to large networks, and does not disrupt normal network performance.

In rejecting the claims, the examiner refers to col. 6, line 60 – col. 7, line 10 and col. 18, lines 1-20 of the Aoki et al. patent as disclosing calculation of a burst parameter. The first section referred to merely discusses various performance index values which are collected from log information for a session. The second section discusses determining whether the speed of a measurement-oriented packet exceeds the available bandwidth of a route in UDP. Aoki et al provide an example of output speed (transfer speed) of a measured packet on a selected route as 920 pps. There is no discussion of calculating a burst parameter for collected traffic.

Under Response to Arguments in the Office Action dated April 28, 2005, the Examiner notes in paragraph 2 that she is interpreting "burst parameter" as transfer speed. However, even in the broadest definition, a burst parameter is not transfer speed of a packet as disclosed in Aoki et al. As is understood by those skilled in the art, burst is a brief but heavy load of transmitted packets. A burst parameter is

calculated using known methods and is not a direct measurement of the transfer speed for the route of a packet, as set forth in Aoki et al.

Furthermore, the Examiner interprets "traffic profile" as any packet parameter including those listed in Fig. 10 of the Aoki et al. patent. However, claim 1 does not set forth measurement of a simple packet parameter for a specific session. Instead claim 1 requires calculation of a burst-rate traffic profile responsive to traffic data collected over a specific time interval. The traffic profile has two parameters, a rate parameter and a burst parameter and is not a single basic measured metric such as start time, end time, segment size, etc., as suggested by the Examiner.

The Sajadieh et al. patent is directed to a delay-locked admission control scheme in communication networks. The Sajadieh et al. patent is directed to providing an efficient technique to improve the inconsistency and variability in service delays in a switching network. Sajadieh et al. use a query delay measurement model which measures a delay be determining a difference between time stamps associated with particular message streams. Only an adaptable number of new data signals are allowed to enter the network switch during any particular time interval, to guarantee a desired delay performance. Sajadieh et al. maintain delay at a network switch at a desired level using feedback parameters. One of the parameters that the control mechanism may use is a maximum observed delay. However, the maximum observed delay is merely an observed metric. There is no teaching of calculating a periodic worst-case delay for a calculated traffic profile.

Accordingly, claim 1 is submitted as patentable over Aoki et al. and Sajadieh et al.

Claims 2-4, 6-8, and 32-35, depending either directly or indirectly therefrom, are submitted as patentable for the same reasons as claim 1.

Claim 4 is further submitted as patentable because Aoki et al. do not show or suggest an associated rate used to calculate a burst-rate traffic profile that is a negotiated rate agreed to by a customer sending the traffic data.

Claim 6 is further submitted as patentable over Aoki et al. and Sajadieh et al., which do not show or suggest calculating a periodic worst-case delay by dividing a burst parameter by an allocated bandwidth associated with a queue. In rejecting claim 6, the Examiner refers to col. 17, lines 4-40, 54-68 and col. 18, lines 1-20 of the Aoki et al. patent. Col. 17 describes a method for calculating available bandwidth. For example, lines 31-35 describe when a transfer speed P of a measurement oriented packet exceeds an upper limit of available bandwidth of a route, the available bandwidth can be presumed to be less than the transfer speed (E/δ). Col. 18 discusses judging whether or not the speed of the measurement-oriented packet exceeds available bandwidth of a route by checking whether or not the round trip times of the measurement-oriented packet has a certain relationship to the round trip times of other measurement-oriented packets. There is no discussion in Aoki et al. of calculating a worst-case delay by dividing a burst parameter by an allocated bandwidth associated with a queue. As noted above, Aoki et al. do not even address calculating a burst parameter, as required by claim 6. Furthermore, Aoki et al. are concerned with available bandwidth of a route rather than bandwidth associated with a specific queue.

Claim 9 is directed to a method of estimating worst-case queuing delay along a path and has been amended to include collecting a rate parameter and a burst parameter. As previously discussed, neither Aoki et al. nor Sajadieh et al. show or suggest collecting rate and burst parameters or calculating a periodic worst-case delay associated with the rate and burst parameters. Moreover, these references also do not teach adding up a periodic worst-case delay associated with routers along a path, as required by claim 9.

Accordingly, claim 9 is submitted as nonobvious over the prior art of record.

Claim 12 specifies calculating a burst parameter and a burst-rate traffic profile, claims 14 and 27 require code that causes a processor to calculate a burst parameter and code that causes the processor to calculate a burst-rate traffic profile, and claim 23 specifies means for calculating a burst parameter for the collected traffic and means for calculating a burst-rate traffic profile. Claims 12, 14, 23, and 27 are submitted as patentable for the reasons discussed above with respect to claim 1. Claim 15, depending from claim 14, claim 24, depending from claim 23, and claim 27, depending from claim 26, are submitted as patentable for the same reasons as claims 14, 23, and 26 respectively.

Claims 20 and 29 specify code that causes the processor to receive burst and rate traffic parameters. Claim 25 requires means for periodically collecting rate and burst traffic parameters. Claim 31 specifies that the periodic worst-case delay is based on a burst parameter and a rate parameter. Claims 11, 26, 30, and 32 are submitted as patentable for the reasons previously discussed with respect to claim 9. Claim 22, depending from claim 20, is submitted as patentable for the same reasons as claim 20.

Claims 33, 34, 35, and 36 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. in view of Sajadieh, in further view of "Network Traffic Characterization Using Token Bucket Model" (Tang et al.). Applicant respectfully submits that Tang et al. do not remedy the deficiencies discussed above for the primary references.

III. Conclusion:

For the foregoing reasons, Applicant believes that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels

that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned at (408) 446-8695.

Respectfully submitted,

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